

REMARKS/ARGUMENTS

I. General Remarks and Disposition of the Claims

Please consider the application in view of the following remarks. Applicants thank the Examiner for her careful consideration of this application.

At the time of the Office Action, claims 18-32 and 35-77 were pending in this application. Claims 20-24, 27, 30, 37-41, 44, 47, 50-64, and 67 are withdrawn from consideration. Claims 18, 19, 25, 26, 28, 29, 31, 32, 35, 36, 42, 43, 45, 46, 48, 49, 65, 66, and 68-77 were rejected in the Office Action. Applicants respectfully request reconsideration in light of the remarks contained herein.

II. Remarks Regarding Rejections Under 35 U.S.C. § 103(a)

A. Claims 35, 36, 42, 45, 48, 49, 65, 66, 68-70, and 72-75

Claims 35, 36, 42, 45, 48, 49, 65, 66, 68-70, and 72-75 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,381,864 issued to Nguyen *et al.* (hereinafter “*Nguyen*”) in view of U.S. Patent No. 4,493,875 issued to Beck *et al.* (hereinafter “*Beck*”), and further in view of U.S. Patent 5,585,524 issued to Sielcken *et al.* (hereafter “*Sielcken*”). With respect to this rejection, and in response to Applicant’s Remarks in their August 15, 2009 Amendment, the Office Action states:

As to the Amendment, As discussed in the previous Office Action, Nguyen *et al.* ‘864 further teaches that the components can be blended together using generally any procedure which is commonly used for preparing fracturing, frac-pack, and gravel packing compositions, e.g. by first mixing the gelling agent with brine or some other aqueous fluid to form the gelled aqueous carrier liquid, transporting the gelled aqueous carrier liquid to a mixing apparatus such as a continuous stream tub mixture, and continuously adding the other components and mixing with the gelled aqueous carrier fluid, and continuously drawing the resulting mixture from the mixer and injected the mixture into the well to a desired subterranean zone (see column 12, lines 46-66).

Nguyen *et al.* fails to teach that a continuous process is carried out using a tubular reactor (Claims 35 and 68).

Sielcken *et al.* teaches that a continuous process can be carried out using a stirred tank reactor (CSTR), a tubular reactor, a non-stirred bubble column and an internal or external gas-lift loop reactor (See column 5, lines 61-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have carried out a continuous process of Nguyen *et al.* ‘864 in a

continuous stream *tubular* reactor instead of a continuous stream tub mixer since Sielcken et al. teaches that a continuous process can be carried out using a CSTR or a tubular reactor.

Note that in the **continuous tubular reactor** the first flowing stream and second flowing stream would be combined and mixed while continuing to flow as a stream, as required by the Amendment.

(Office Action at 3-6.) Applicants respectfully disagree.

As previously noted, the combination of *Nguyen* and *Beck* does not teach each and every recitation of the present claims. In particular, the combination of *Nguyen* and *Beck* fails to teach or suggest “combining the first flowing stream and the second flowing stream to form a third flowing stream that comprises the first flowing stream, the second flow stream, and a...fluid, wherein the first flowing stream and the second flowing stream are combined and mixed while continuing to flow as a stream,” as required by independent claims 35 and 68, as amended. In contrast, *Nguyen* discloses that the use of a continuous tub mixer, wherein “[a]s the components are mixed, the resulting mixture is continuously drawn from the mixer.” See *Nguyen*, col. 12, lines 46-66. There mere fact that a stream may be continuously drawn from a tub mixer does not imply that *Nguyen* discloses combining a first flowing stream and a second flowing stream to form a third flowing stream, wherein the first flowing stream and second flowing stream are combined and mixed while continuing to flow as a stream.

The Examiner appears to at least implicitly agree that *Nguyen* and *Beck* do not disclose each and every claim limitation, as the previous rejection has been modified to include *Sielcken*. The Examiner relies upon *Sielcken* for the disclosure of a continuous tubular reactor, in which according to the Examiner, “the first flowing stream and second flowing stream would be combined and mixed while continuing to flow as a stream.”

Applicants respectfully submit that the introduction of *Sielcken* fails to establish a *prima facie* case of obviousness for at least two reasons: a) *Sielcken* is non-analogous art and b) there is no reasonable expectation of success that the continuous tubular reactor disclosed therein could be applied to the subterranean treatment fluids disclosed in *Nguyen* and *Beck*.

1. *Sielcken* is Non-Analogous Art

References within the statutory terms of 35 U.S.C. §102 qualify as prior art for an obviousness determination only when analogous to the claimed invention. In re Clay, 966 F.2d 656, 658 (Fed. Cir. 1992). There are two criteria to be applied when determining whether a prior

art reference is analogous: (1) whether the reference is from the same field of endeavor as the claimed invention, and (2) if the reference is not within the same field of endeavor, “whether the reference is reasonably pertinent to the particular problem with which the inventor is involved.” *In re Clay*, 966 F.2d at 658-59. When neither criterion is met, the reference is deemed “non-analogous” and is not considered pertinent to the § 103 determination. *See, e.g., Ex Parte Daniel John Smith et al.*, 2009 WL 537181 (Bd.Pat.App. & Interf.) (March 3, 2009).

Regarding the first criteria, *Sielcken* is not in the same field of endeavor as the claimed invention. *Sielcken* relates to a method of preparing an aldehyde while recycling cobalt, while the present application relates to oil and gas field services.

Regarding the second criteria, *Sielcken* is not reasonably pertinent to the particular problem with which the present invention is involved, i.e., providing an efficient means to reduce particulate density, such as in a subterranean fracturing operation. *Sielcken* is not reasonably pertinent to providing particulates for any purpose, and instead relates to an organic synthesis reaction, which is presumably conducted in a lab or other highly controlled space. Again, *Sielcken* has nothing to do with an oil or gas field fracturing operation and thus has nothing to do with the components (e.g. particulates) that are involved in such an operation.

2. There is No Reasonable Expectation of Successfully Applying the Techniques of *Sielcken* to *Nguyen* and *Beck*

In order to establish a *prima facie* case of obviousness based on the combination of references, there must be a reasonable expectation of successfully combining the references. *See* MANUAL OF PATENT EXAMINATION PROCEDURE, Section 2143.02, Latest Revision July 2008. Rejections should not be based on the impermissible use of hindsight in view of the Applicant’s own disclosure. *See, e.g., Ex parte Warren*, Appeal No. 2007-4515, 2008 WL 1706584 (Bd. Pat. App. & Interf., Apr. 11, 2008).

As noted above, *Sielcken* relates to organic synthesis techniques that, presumably, are performed in a lab or other highly controlled space. In *Sielcken*, the reaction temperatures and pressures are tightly controlled, and it appears that the reactants are in liquid form (see *Sielcken*, col. 3, ll. 36-39; col. 5, ll. 29-36). The organic reaction scheme disclosed in *Sielcken* does not involve the use of anything resembling the particulates discussed in *Nguyen* and *Beck*. There is no reasonable expectation that, merely because a continuous tubular reactor is purportedly effective in *Sielcken*, such a reactor would be successfully used in the particulate

coating process of *Nguyen and Beck*. For example, there is no indication that the tubular reactor could handle the solid particulates of *Nguyen and Beck*.

At least because *Sielcken* is non-analogous art, and further because there is no reasonable expectation of successfully combining the relevant teachings of *Sielcken* with *Nguyen and Beck*, Applicants respectfully submit that a *prima facie* case of obviousness has not been established. Applicants request that the obviousness rejection be withdrawn.

B. Claims 43 and 74

Claims 43 and 74 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nguyen* in view of *Beck*, in view of *Sielcken*, as applied above, and in still further view of U.S. Patent No. 4,665,988 issued to Murphey *et al.* (hereinafter "*Murphey*"). With respect to this rejection, the Office Action states that the objection is "for the reasons of record set forth in paragraph 3 of the Office Action mailed on 1/14/2009."

Applicants note that paragraph 3 of the Office Action mailed on 1/14/2009 did not include *Sielcken*. Thus the modified rejection now apparently requires the inclusion of *Sielcken*, presumably for the teaching of a continuous tubular reactor discussed above in Section A.

As discussed in Section A, at least because *Sielcken* is non-analogous art, and further because there is no reasonable expectation of successfully combining the relevant teachings of *Sielcken* with *Nguyen, Beck*, and *Murphey*, Applicants respectfully submit that a *prima facie* case of obviousness has not been established. Applicants request that the obviousness rejection be withdrawn.

C. Claims 45, 46, 75, and 76

Claims 45, 46, 75, and 76 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nguyen* in view of *Beck*, in further view of *Sielcken*, as applied above, and in still further view of U.S. Patent Application Publication No. 2002/0048676 by McDaniel *et al.* (hereinafter "*McDaniel*"). With respect to this rejection, the Office Action states that the objection is "for the reasons of record set forth in paragraph 4 of the Office Action mailed on 1/14/2009."

Applicants note that paragraph 4 of the Office Action mailed on 1/14/2009 did not include *Sielcken*. Thus the modified rejection now apparently requires the inclusion of *Sielcken*, presumably for the teaching of a continuous tubular reactor discussed above in Section A.

As discussed in Section A, at least because *Sielcken* is non-analogous art, and further because there is no reasonable expectation of successfully combining the relevant teachings of *Sielcken* with *Nguyen*, *Beck*, and *McDaniel*, Applicants respectfully submit that a *prima facie* case of obviousness has not been established. Applicants request that the obviousness rejection be withdrawn.

D. Claims 18, 19, 25, 28, 31, 32, 65, 66, 71, and 77

Claims 18, 19, 25, 28, 31, 32, 71, and 77 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nguyen* in view of *Beck*, in further view of *Sielcken*, and in still further view of U.S. Patent No. 4,969,523 issued to Martin *et al.* (hereinafter “*Martin*”). With respect to this rejection, the Office Action states that the objection is “for the reasons of record set forth in paragraph 5 of the Office Action mailed on 1/14/2009.”

Applicants note that paragraph 5 of the Office Action mailed on 1/14/2009 did not include *Sielcken*. Thus the modified rejection now apparently requires the inclusion of *Sielcken*, presumably for the teaching of a continuous tubular reactor discussed above in Section A.

As discussed in Section A, at least because *Sielcken* is non-analogous art, and further because there is no reasonable expectation of successfully combining the relevant teachings of *Sielcken* with *Nguyen*, *Beck*, and *Martin*, Applicants respectfully submit that a *prima facie* case of obviousness has not been established. Applicants request that the obviousness rejection be withdrawn.

E. Claim 26

Claim 26 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nguyen* in view of *Beck*, *Sielcken*, *Martin*, and *Murphey*. With respect to this rejection, the Office Action states that the objection is “for the reasons of record set forth in paragraph 6 of the Office Action mailed on 1/14/2009.”

Applicants note that paragraph 6 of the Office Action mailed on 1/14/2009 did not include *Sielcken*. Thus the modified rejection now apparently requires the inclusion of *Sielcken*, presumably for the teaching of a continuous tubular reactor discussed above in Section A.

As discussed in Section A, at least because *Sielcken* is non-analogous art, and further because there is no reasonable expectation of successfully combining the relevant teachings of *Sielcken* with *Nguyen*, *Beck*, *Martin*, and *Murphey*, Applicants respectfully submit that a *prima facie* case of obviousness has not been established. Applicants request that the obviousness rejection be withdrawn.

F. Claims 28 and 29

Claims 28 and 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nguyen* in view of *Beck*, *Sielcken*, *Martin*, and *McDaniel*. With respect to this rejection, the Office Action states that the objection is “for the reasons of record set forth in paragraph 7 of the Office Action mailed on 1/14/2009.”

Applicants note that paragraph 7 of the Office Action mailed on 1/14/2009 did not include *Sielcken*. Thus the modified rejection now apparently requires the inclusion of *Sielcken*, presumably for the teaching of a continuous tubular reactor discussed above in Section A.

As discussed in Section A, at least because *Sielcken* is non-analogous art, and further because there is no reasonable expectation of successfully combining the relevant teachings of *Sielcken* with *Nguyen*, *Beck*, *Martin*, and *McDaniel*, Applicants respectfully submit that a *prima facie* case of obviousness has not been established. Applicants request that the obviousness rejection be withdrawn.

G. Claims 35, 36, 42, 45, 46, 48, 49, 68-70, 72, 73, 75, and 76

Claims 35, 36, 42, 45, 46, 48, 49, 68-70, 72, 73, 75, and 76 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,128,390 issued to *Murphey et al.* (hereinafter “*Murphey ‘390’*”) in view of *McDaniel*, and still further in view of *Sielcken*. With respect to this rejection, the Office Action states that the objection is “for the reasons of record set forth in paragraph 8 of the Office Action mailed on 1/14/2009.”

Applicants note that paragraph 8 of the Office Action mailed on 1/14/2009 did not include *Sielcken*. Thus the modified rejection now apparently requires the inclusion of *Sielcken*, presumably for the teaching of a continuous tubular reactor discussed above in Section A.

As discussed in Section A, at least because *Sielcken* is non-analogous art, and further because there is no reasonable expectation of successfully combining the relevant teachings of *Sielcken* with *Murphey* and *McDaniel*, Applicants respectfully submit that a *prima facie* case of obviousness has not been established. Applicants request that the obviousness rejection be withdrawn.

H. Claims 43 and 74

Claims 43 and 74 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Murphey '390* in view of *Sielcken*, *McDaniel* and *Murphey '988*. With respect to this rejection, the Office Action states that the objection is “for the reasons of record set forth in paragraph 9 of the Office Action mailed on 1/14/2009.”

Applicants note that paragraph 9 of the Office Action mailed on 1/14/2009 did not include *Sielcken*. Thus the modified rejection now apparently requires the inclusion of *Sielcken*, presumably for the teaching of a continuous tubular reactor discussed above in Section A.

As discussed in Section A, at least because *Sielcken* is non-analogous art, and further because there is no reasonable expectation of successfully combining the relevant teachings of *Sielcken* with *Murphey '390*, *McDaniel* and *Murphey '988*, Applicants respectfully submit that a *prima facie* case of obviousness has not been established. Applicants request that the obviousness rejection be withdrawn.

I. Claims 18, 19, 25, 28, 29, 31, 32, 71, and 77

Claims 18, 19, 25, 28, 29, 31, 32, 71, and 77 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Murphey '390* in view of *McDaniel*, *Sielcken*, and *Martin*. With respect to this rejection, the Office Action states that the objection is “for the reasons of record set forth in paragraph 10 of the Office Action mailed on 1/14/2009.”

Applicants note that paragraph 10 of the Office Action mailed on 1/14/2009 did not include *Sielcken*. Thus the modified rejection now apparently requires the inclusion of *Sielcken*, presumably for the teaching of a continuous tubular reactor discussed above in Section A.

As discussed in Section A, at least because *Sielcken* is non-analogous art, and further because there is no reasonable expectation of successfully combining the relevant teachings of *Sielcken* with *Murphey '390*, *McDaniel*, and *Martin*, Applicants respectfully submit that a *prima facie* case of obviousness has not been established. Applicants request that the obviousness rejection be withdrawn.

J. Claim 26

Claim 26 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Murphey '390* in view of *McDaniel*, *Sielcken*, *Martin*, and *Murphey '988*. With respect to this

rejection, the Office Action states that the objection is “for the reasons of record set forth in paragraph 11 of the Office Action mailed on 1/14/2009.”

Applicants note that paragraph 11 of the Office Action mailed on 1/14/2009 did not include *Sielcken*. Thus the modified rejection now apparently requires the inclusion of *Sielcken*, presumably for the teaching of a continuous tubular reactor discussed above in Section A.

As discussed in Section A, at least because *Sielcken* is non-analogous art, and further because there is no reasonable expectation of successfully combining the relevant teachings of *Sielcken* with *Murphey* '390, *McDaniel*, *Martin*, and *Murphey* '988, Applicants respectfully submit that a *prima facie* case of obviousness has not been established. Applicants request that the obviousness rejection be withdrawn.

III. No Waiver

All of Applicants' arguments and amendments are without prejudice or disclaimer. Additionally, Applicants have merely discussed example distinctions from the cited references. Other distinctions may exist, and Applicants reserve the right to discuss these additional distinctions in a later Response or on Appeal, if appropriate. By not responding to additional statements made by the Examiner, Applicants do not acquiesce to the Examiner's additional statements, such as, for example, any statements relating to what would be obvious to a person of ordinary skill in the art.

SUMMARY

In light of the above amendments and remarks, Applicants respectfully request reconsideration and withdrawal of the outstanding rejections. Applicants further submit that the application is now in condition for allowance, and earnestly solicit timely notice of the same. Should the Examiner have any questions, comments or suggestions in furtherance of the prosecution of this application, the Examiner is invited to contact the attorney of record by telephone, facsimile, or electronic mail.

Should the Commissioner deem that any additional fees are due, the

Commissioner is authorized to debit Baker Botts L.L.P.'s Deposit Account No. 02-0383, Order Number 063718.0178, for any underpayment of fees that may be due in association with this filing.

Respectfully submitted,

/Jason C. Chumney/
Jason C. Chumney
Registration No. 54,781
BAKER BOTTS L.L.P.
One Shell Plaza
910 Louisiana
Houston, TX 77002
Telephone: 212.408.2524
Facsimile: 212.259.2524

Date: November 4, 2009